

AMENDMENT

IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A substrate cleaning method comprising:

~~which performs performing a cleaning process and a dry process on a target substrate, the dry process comprising the steps of: on a target substrate while feeding a cleaning liquid onto the substrate; and~~

~~rotating performing a dry process on the target substrate after the cleaning process, wherein the dry process comprises,~~

~~rotating the target substrate in an approximately a horizontal state during a predetermined period, and~~

~~starting feeding of a rinse liquid onto to a center of a surface of the target substrate at or before a first time; starting feeding an inactive gas to a point within the predetermined period, while setting a liquid feed point where the rinse liquid is supplied onto at an adequate distance apart from the center of the target substrate, at a center of the target substrate,; and~~

~~starting feeding of an moving a gas feed point for supply of the inactive gas onto the surface of the target substrate at or before the first time point within the predetermined period, while setting a gas toward the center of the target substrate while moving a rinse liquid feed point where the inactive gas is supplied onto for supply of the rinse liquid to the target substrate at a gas start position 10 to 50 mm distant and then moving the gas feed point toward a periphery from the center of the target substrate substrate,~~

~~feeding the rinse liquid onto the surface of the target substrate during a period from the first time point to a second time point within the predetermined period, while moving the liquid feed point radially outward from the center of the target substrate to an intermediate position on the substrate,~~

~~feeding the inactive gas onto the surface of the target substrate during the period from the first time point to the second time point, while moving the gas feed point radially inward from the gas start position to the center of the target substrate,~~

~~feeding the rinse liquid onto the surface of the target substrate during a period from the~~

second time point to a third time point within the predetermined period, while moving the liquid feed point radially outward from the intermediate position to a periphery of the target substrate, and

feeding the inactive gas onto the surface of the target substrate during the period from the second time point to a fourth time point within the predetermined period, while moving the gas feed point radially outward from the center of the target substrate to the periphery of the target substrate, such that the gas feed point is kept in an area located radially inward of the rinse-liquid feed point during the period from the second time point to the third time point.

2. (Currently amended) The substrate cleaning method according to claim 1, wherein said starting of feeding a rinse liquid and said starting of feeding the an inactive gas to the point at the adequate distance apart from the center of the target substrate in the vicinity of the center of the target substrate is started are performed substantially at a the same time as initiation of feeding the rinse liquid to the center of the surface of the target substrate.

3. (Currently amended) The substrate cleaning method according to claim 1, wherein a moving speed of the gas feed point is made faster at a circumferential portion moved at a higher speed at the periphery of the target substrate than at the center a center portion thereof during the periods from the second time point to the fourth time point.

4. (Currently amended) The substrate cleaning method according to claim 1, wherein the method further comprises a rinse process, which feeds including feeding the rinse liquid onto a predetermined point of the surface of the target substrate for a predetermined time while rotating the target substrate in an approximately a horizontal state is provided state, between the cleaning process and the dry process, and a number of rotations of rotating the target substrate at a time of feeding the inactive gas is set greater than a number of rotations of the target substrate at a time of during the periods from the first time point to the fourth time point with a higher rotational speed than in the rinse process.

5. (Currently amended) The substrate cleaning method according to claim 1, wherein the method

~~further comprises a rinse process, which feeds including feeding the rinse liquid onto a predetermined point of the surface of the target substrate for a predetermined time while rotating the target substrate in an approximately a horizontal state is provided state, between the cleaning process and the dry process, and an wherein an amount of the rinse liquid to be fed onto the surface of the target substrate at a time of is smaller in the dry process is made less than in that at a time of the rinse process.~~

6. (Currently amended) The substrate cleaning method according to claim 1, wherein ~~the method further comprises a rinse process, which feeds including feeding the rinse liquid onto a predetermined point of the surface of the target substrate for a predetermined time while rotating the target substrate in an approximately a horizontal state is provided state, between the cleaning process and the dry process, and an wherein a film of the rinse liquid is formed present on the surface of the target substrate before initiation of when the dry process is started.~~

7. (Currently amended) The substrate cleaning method according to claim 1, wherein ~~after the rinse liquid feed point comes off the periphery of the target substrate, the gas feed point is stopped near a circumferential portion of the dry process further comprises feeding the inactive gas onto the surface of the target substrate for a predetermined time from the fourth time point, while setting the gas feed point at the periphery, thereby drying the circumferential portion of the target substrate.~~

8. (Currently amended) The substrate cleaning method according to claim 1, wherein ~~in the step of moving the rinse liquid the liquid feed point and the gas feed point in the dry process, a direction in which the gas feed point moves from the center of the target substrate to the periphery thereof is shifted from a direction in which the rinse liquid feed point moves from the center of the target substrate to the periphery thereof are moved in different directions during the period from the second time point to the third time point.~~

9. (Currently amended) The substrate cleaning method according to claim 1, wherein the surface of the target substrate is hydrophobic comprises a hydrophobic portion.

10. (Currently amended) A substrate cleaning method comprising:

which performs performing a cleaning process and a dry process on a target substrate while feeding a cleaning liquid onto the substrate; and

performing a dry process on a target the target substrate after the cleaning process, the dry process including the steps of

wherein the dry process comprises,

rotating the target substrate in an approximately a horizontal state during a predetermined period, and

starting feeding of a rinse liquid while moving a feed point thereof from a center of onto a surface of the target substrate toward a periphery thereof; at or before a first time point within the predetermined period, while setting a liquid feed point where the rinse liquid is supplied onto the target substrate, at a center of the target substrate,

starting feeding of an inactive gas onto the surface of the target substrate at or before the first time point within the predetermined period, while setting a gas feed point where the inactive gas is supplied onto the target substrate at a gas start position 10 to 50 mm distant from the center of the target substrate,

feeding the rinse liquid on to the surface of the target substrate during a period from the first time point to a second time point within the predetermined period, while moving the liquid feed point radially outward from the center of the target substrate to an intermediate position on the target substrate,

feeding the inactive gas onto the surface of the target substrate during the period from the first time point to the second time point, while moving the gas feed point radially inward from the gas start position to the center of the target substrate,

feeding the inactive gas onto the surface of the target substrate during the period from the second time point to the third time point and a period from the third time point to a fourth time point within the predetermined period, while moving the gas feed point radially outward from the center of the target substrate to the periphery of the target substrate, in such a way that a such that the gas feed point is kept thereof moves from a center portion of the target substrate toward the periphery thereof in an area located radially inward of the rinse-liquid feed point; point during the

period from the second time point to the third time point, and

rotating the substrate without stopping feeding either the rinse liquid or after the rinse-liquid feed point comes off an end face of the target substrate; and stopping feeding the inactive gas after the inactive-gas feed point comes off the end face of the target substrate, and then setting a number of rotations of the target substrate greater than a number of rotations onto the surface of the target substrate at a time of feeding the inactive gas for a predetermined time from or after the fourth time point, with a higher rotational speed than in the periods from the first time point to the fourth time point.

11. (Currently amended) The substrate cleaning method according to claim 10, wherein a moving speed of the gas feed point is made faster at a circumferential portion moved at a higher speed at the periphery of the target substrate than at a center the center portion thereof during the periods from the second time point to the fourth time point.

12. (Currently amended) The substrate cleaning method according to claim 10, wherein the method further comprises a rinse process, which feeds including feeding the rinse liquid to a predetermined point of onto the surface of the target substrate for a predetermined time while rotating the target substrate in an approximately in a horizontal state state, is provided between the cleaning process and the dry process, and a number of rotations of rotating the target substrate at a time of feeding the inactive gas is set greater than a number of rotations of the target substrate at a time of during the periods from the first time point to the fourth time point with a higher rotational speed than in the rinse process.

13. (Currently amended) The substrate cleaning method according to claim 10, wherein the method further comprises a rinse process, which feeds including feeding the rinse liquid to a predetermined point of onto the surface of the target substrate for a predetermined time while rotating the target substrate in an approximately in a horizontal state state, is provided between the cleaning process and the dry process, and an wherein an amount of the rinse liquid to be fed onto fed to the surface of the target substrate at a time of is smaller in the dry process is made less than that at a time of than in the rinse process.

14. (Currently amended) The substrate cleaning method according to claim 10, wherein the method further comprises a rinse process, which feeds including feeding the rinse liquid to a predetermined point of onto the surface of the target substrate for a predetermined time while rotating the target substrate in an approximately in a horizontal state state, is provided between the cleaning process and the dry process, and wherein a film of the rinse liquid is formed present on the surface of the target substrate when before initiation of the dry process is started.

15. (Currently amended) The substrate cleaning method according to claim 10, wherein after the rinse liquid feed point comes off the periphery of the target substrate, the gas feed point is stopped near a circumferential portion the dry process further comprises feeding the inactive gas onto the surface of the target substrate for a predetermined time from the fourth time point, thereby drying the circumferential portion while setting the gas feed point at the periphery of the target substrate.

16. (Currently amended) The substrate cleaning method according to claim 10, wherein ~~in the step of moving the rinse liquid liquid feed point and the gas feed point in the dry process, a direction in which the gas feed point moves from the center of the target substrate to the periphery thereof is shifted from a direction in which the rinse liquid feed point moves from the center of the target substrate to the periphery thereof~~ are moved in different directions during the period of the second time point to the third time point.

17. (Currently amended) The substrate cleaning method according to claim 10, wherein the surface of the target substrate ~~is hydrophobic~~ comprises a hydrophobic portion.

18-22. (Canceled)

23. (Currently amended) A computer readable storage medium ~~storing having recorded software for allowing a computer to run a control program- instructions which run on a computer controls to control~~ a substrate cleaning apparatus to conduct a substrate cleaning method comprising: in

such a way as to clean a target substrate by executing a process of drying the target substrate by, when execute, (a) rotating the target substrate undergone a

performing a cleaning process, and starting feeding a rinse liquid to a center of a surface of the on a target substrate while feeding a cleaning liquid onto the substrate; and, (b) starting feeding

performing a dry process on the target substrate after the cleaning process,

wherein the dry process comprises,

rotating the target substrate in a horizontal state during a predetermined period,

starting feeding of a rinse liquid onto a surface an inactive gas to a point at an adequate distance apart from the center of the target substrate at or before a first time point within the predetermined period, while setting a liquid feed point where the rinse liquid is supplied onto the target substrate, at a center of the target substrate,

starting feeding of an in a vicinity of the center of the target substrate, and (c) moving a gas feed point for supply of the inactive gas onto the surface of the target substrate at or before the first time point within the predetermined period, while setting a gas feed point where the inactive gas is supplied onto toward the center of the target substrate while moving a rinse liquid feed point for supply of the rinse liquid to, the target substrate at a gas start position 10 to 50 mm distant and then moving the gas feed point toward a periphery from the center of the target substrate substrate,

feeding the rinse liquid onto the surface of the target substrate during a period from the first time point to a second time point within the predetermined period, while moving the liquid feed point radially outward from the center of the target substrate to an intermediate position on the target substrate,

feeding the inactive gas onto the surface of the target substrate during the period from the first time point to the second time point, while moving the gas feed point radially inward from the gas start position to the center of the target substrate,

feeding the rinse liquid onto the surface of the target substrate during a period from the second time point to a third time point within the predetermined period, while moving the liquid feed point radially outward from the intermediate position to a

periphery of the target substrate, and

feeding the inactive gas onto the surface of the target substrate during the period from the second time point to the third time point and a period from the third time point to a fourth time point within the predetermined period, while moving the gas feed point radially outward from the center of the target substrate to the periphery of the target substrate, such that the gas feed point is kept in an area located radially inward of the rinse-liquid feed point during the period from the second time point to the third time point.

24. (Currently amended) A computer readable storage medium ~~storing having recorded software for allowing a computer to run a control program- instructions~~ which run on a computer controls to control a substrate cleaning apparatus to conduct a substrate cleaning method comprising: in such a way as to clean a target substrate by executing a process of drying the target substrate by, when execute, (a) rotating the target substrate undergone a

performing a cleaning process on a target substrate while feeding a cleaning liquid onto the substrate; and

performing a dry process on the target substrate after the cleaning process,

wherein the dry process comprises,

rotating the target substrate in an approximately a horizontal state during a predetermined period, and

starting feeding of a rinse liquid while moving a feed point thereof from a center of a onto a surface of the target substrate at or before a first time point within the predetermined period, while setting a liquid feed point where the rinse liquid is supplied onto the target substrate, at the center of the target substrate,

starting toward a periphery thereof, (b) feeding of an inactive gas in such a way that a gas feed point thereof moves from a center portion onto the surface of the target substrate at or before the first time point within the predetermined period, while setting a liquid feed point where the inactive gas is supplied onto the target substrate at a gas start position 10 to 50 mm distant from the center of the target substrate,



feeding toward the periphery thereof in an area located radially inward of the rinse liquid feed point, (c) stopping feeding the rinse liquid after the rinse liquid feed point comes off an end face of onto the surface of the target substrate, and (d) stopping feeding the inactive gas after the during a period from the first time point to a second time point within the predetermined period, while moving the liquid feed point radially outward from the center of the target substrate to an intermediate position on the target substrate,

feeding the inactive gas onto the surface of the target substrate during the period from the first time point to the second time point, while moving the gas feed point radially inward from the gas start position to the center of the target substrate,

feeding the rinse liquid onto the surface of the target substrate during a period from the second time point to a third time point within the predetermined period, while moving the liquid feed point radially outward from the intermediate position to a periphery of the target substrate, and

feeding the inactive-gas gas onto feed point comes off the end the surface of the target substrate during the period from the second time point to the third time point and a period from the third time point to a fourth time point within the predetermined period, while moving the gas feed point radially outward from the center of the target substrate to the periphery, and then setting a number of rotations of the target substrate, such that the gas feed point is kept located radially inward of the liquid feed point during the period from the second time point to the third time point, and

rotating the substrate without feeding either the rinse liquid or greater than a number of rotations of the target substrate at a time of feeding the inactive gas on the surface of the target substrate for a predetermined time from or after the fourth time point, with a higher rotational speed than in the periods from the first time point to the fourth time point.